

ROBINSON, (B)

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REMEDY IN PHTHISIS PULMONALIS.

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CREASOTE AS A REMEDY IN PHTHISIS PULMONALIS.

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THE use of creasote in the treatment of phthisis pulmonalis dates back to 1830, the year in which it was discovered by Reichenbach, of Blausko, in Moravia. Later on, it fell into disuse, like some other valuable medicaments, and for nearly thirty years previous to 1877 it was practically of little or no importance in the therapeutics of pulmonary disease. At the date just referred to, Drs. Bouchard and Gimbert again revived interest in this drug by publishing a very complete article in the *Gazette Hebdomadaire*, of Paris,¹ on its beneficial effects in consumption. They claimed for it excellent results, and for careful, learned, and honest observers their account was as nearly enthusiastic as thorough work is apt to be.

Shortly after reading of the observations of Bouchard and Gimbert, I began to use creasote in the treatment of pulmonary phthisis, and in a clinical lecture delivered at the Bellevue Hospital Medical College, and published in the *Medical Record* of September 21, 1878, page 223, I mention in what manner I have used it and with what results in the following terms :

"For several months, both in the Outdoor Department of the New York Hospital, at Charity Hospital, and elsewhere, I have given dessert-spoonful doses of the mistura creasoti of our *Pharmacopœia* to lessen the quantity of sputa in phthisis. I am very much pleased with this remedy, and believe it merits a very extensive trial. No doubt, in lessening the abundance of expectoration, it also diminishes the frequency of cough."

At that time, I would add, I regarded creasote as being only a good anti-catarrhal agent, to be ranked high amongst some analogous remedial substances whose main action consisted in the diminution of the amount

¹ Pages 486, 504, 522, and 620.

of purulent sputa, but which had little or no curative effect upon the essential lesions of pulmonary phthisis, as we understand them.

From 1878 until 1885, the year when Jaccoud's treatise on pulmonary phthisis, translated by Montague Lubbock, was published, I continued to make use of creasote from time to time, but without watching carefully its effects, or believing that we had discovered, in the employment of this drug, a very valuable addition to our usual medicinal means of treating pulmonary phthisis. Jaccoud's statements about the advantages resulting from the internal exhibition of creasote in this disease impressed me very much, and from the time I first read them to the present date, I have prescribed creasote very frequently in pulmonary phthisis, and, usually, with marked beneficial effects.

About the period when Jaccoud's work was first published, the employment of antiseptic inhalations in the treatment of this disease interested me, and amongst the substances of which I made extensive use none seemed to me of more value than creasote. A great deal of what I could even now say with truth, in regard to the utility and evident results of antiseptic inhalations in the treatment of pulmonary phthisis, can be found by reference to a paper read by me on this subject, at the second annual meeting of the American Climatological Association, held in New York City, May 27, 1885, and, also, in a clinical lecture entitled "Modern Methods of Treatment of Pulmonary Phthisis,"¹ which was delivered before the students of the Bellevue Hospital Medical College, October 27, 1885, and was published in the *New York Medical Journal* of November 14, 1885, page 535. In the issue of the *Journal* of that date, the following occurs:

"I have employed at different times a large number of inhaling fluids and many different combinations. The fluid and combination to which I now give the preference are creasote and alcohol, equal parts, to which I also frequently add a like proportion of spirits of chloroform. This combination is certainly very useful in allaying cough and modifying the quantity and quality of the sputa in pulmonary phthisis. I, therefore, recommend it very warmly. The alcohol is added to the creasote for the double purpose of diluting it and making it more volatile; the spirits of chloroform is added, in view of the experience of Dr. J. Solis-Cohen, of Philadelphia, to diminish local irritation and excessive cough. . . . Properly and judiciously employed, the creasote inhalant relieves symptoms notably, and in the beginning, at least,

¹ This paper was published in the Transactions of the Association. D. Appleton & Co., New York, 1886.

of pulmonary phthisis is, I believe, a means of decided utility, so far as the possible arrest of the disease is concerned. It is important that *beechwood creasote be employed*. . . . Precisely the way in which creasote is most useful is, perhaps, difficult to state. By its antiseptic action it is possibly destructive of bacilli; by its local action and general effect it is certainly of value in combating catarrhal conditions. Where purulent cavities exist, it tends to destroy, or neutralize, putridity. These are certainly sufficiently good reasons for its use without pursuing the inquiry further. At all events, these inhalations do good. The physician notices it, and the patient affirms it. In many instances they allay cough better than any cough mixture, and they are certainly free from the great objection of destroying appetite, as opium and morphine so frequently do."

I mention the preceding facts to show, as I trust I have been able to do, that *my* interest in, and experience of, the good effects of creasote in the treatment of pulmonary phthisis date back already several years, and is by no means the outgrowth of later observations which have come to us mainly from Germany, and at the hands of Fräntzel,¹ Sommerbrodt,² Guttmann,³ Lublinski,⁴ etc.

And here I would like to add a word of praise for that very distinguished therapeutician, Dr. Dujardin-Beaumetz, who, in his remarkable work on clinical therapeutics,⁵ has given corroborative testimony which, in my mind, has increased the importance of creasote as a valuable therapeutic addition to our ordinary arsenal for the relief of phthisical patients. In the latest edition, also, of the admirable work of R. Douglas Powell,⁶ will be found remarks of considerable value with respect to the indications for the employment of this drug. In this author's observation, he has been led strongly to doubt whether creasote can be given during the hectic stage in sufficient quantities to influence pyrexia without running a grave risk of setting up gastro-intestinal irritation and destroying appetite. He regards it as being of more value in apyrexial conditions; he adds, however, that "when there is much local disturbance of the stomach and upper bowel, small doses of creasote in combination with opium are sometimes of great service."

I do not wish further to weary your attention with mere bibli-

¹ Deutsche med. Wochenschrift, No 14, 1887.

² Berliner klin. Wochenschrift, No. 15, 1887.

³ Zeitschrift f. klin. Med., Berlin, 1887, xiii. 488-494; and Boston Medical and Surgical Journal, August 18, 1887, p. 161.

⁴ Deutsche med. Wochenschrift, Leipzig, 1887, xiii. 829.

⁵ Leçons de Clinique Thérapeutique, t.^e 2. Paris, 1885, 4th edition, p. 549, et seq.

⁶ Diseases of the Lungs and Pleura, etc. William Wood & Co., New York, 3d edition, 1886, p. 307.

graphical research, and refer to all the observations which have been made in regard to the creasote treatment of pulmonary phthisis; suffice it to say, that it has been largely praised; that several late observers, notably Fräntzel, Sommerbrodt, and Guttmann, are inclined to regard it as directly curative of pulmonary phthisis, at least in its initial, or first, stage; that others, on the contrary, are less favorably disposed toward it, and frankly confess that they have been disappointed in it; and have discovered no reliable evidence to show that creasote has any marked beneficial action over and beyond what may be obtained from several other anti-bacillary agents.

Naturally, the discovery of the bacillus tuberculosis by Koch, in 1882, made those observers who gave it internally, or who made use of it in inhalations, or, in some rare instances, by hypodermatic or intrapulmonary injections,¹ since that date, endeavor to establish its utility mainly upon its antiseptic properties, and upon its power "to retard the local development of tuberculosis," which is probable if the experiments on animals of Coze and Simon, in 1883, can be relied on.² Hippolyte Martin,³ also, found that creasote failed to destroy the bacillus of tuberculosis, even in the proportion of 1 per 1000. This fact is said by him to be equally true of salicylic acid (solution of 5 per cent.); bromine (1 per 10,000 and 1 per 1000); phenic acid (1 : 1000); quinine and corrosive sublimate (1 : 1000). In experiments⁴ undertaken by C. T. Williams in 1883, with respect to agents which check the development of bacilli most, it was found that *quinine had manifest action in preventing their development*. These properties and this power are not spoken of, and were not probably thought of, as they now are, by Bouchard and Gimbert. They are of the opinion, however, that creasote acts locally on the pulmonary lesion, and produces marked effects which are also beneficial. Essentially,

¹ See Wien. med. Presse, 1888, xxix. 87; Medical News, June 23, 1888, p. 696; American Journal of the Medical Sciences, February, 1888, p. 179; New Medications, by Beaumetz, p. 192; Lyon Médical, 1885.

² According to Schill and Fischer, who mixed tubercular sputa with many different substances and afterward inoculated them in different animals, creasote does not appear to have any inhibitory action on the tubercular virus. (v. Mittheilungen aus dem K. Gesundheitsamte, 1884.)

³ On transformation of true or infectious tubercle into an inert foreign body under the influence of high temperatures and various reagents. Arch. de Phys., 1881, p. 93; Revue de Méd., 1882, t. ii. p. 905, 1883, t. iii. p. 209—quoted by Beaumetz in New Medications, translated by E. P. Hurd, M.D.—foot-note on page 182.

⁴ Proceedings of Royal Society, No. 231, 1884, quoted in work on pulmonary consumption, 2d ed. Philadelphia, 1887.

they believe that creasote has the effect of promoting the growth of fibrous tissue around an area of consolidated, or broken-down lung structure. Thus it is, with the passage of time, that the cheesy infiltrations in the lungs become absorbed little by little, as the softened masses (or the contents of large cavities) are expectorated and the surrounding walls close in upon a relative vacuum where previously necrosed tissue in a solid or liquid form was largely present.

As will be seen by my own observations in a few cases later on, I am inclined to share this view and believe in its exactness.¹ In regard to it, Jaccoud writes as follows: "Creasote seems also to have some effect upon the fundamental lesions themselves, and to promote the sclerotic change by means of which recovery is found to occur in this disease." (Loc. cit., p. 156.) Indeed, Jaccoud has remarked frequently, after the bronchitis had disappeared and stethoscopic signs of a pulmonary lesion were reduced to a minimum, that two or three months later there was an evident and secondary diminution in the extent of the affected area, and *bronchial breathing* and *bronchophony* on the periphery of this area. These signs accompanying an evident improvement in the general condition seemed to indicate evidently a sclerosis around the area of pulmonary softening.

As regards the anti-bacillary effects of creasote when taken internally, or by inhalation, or both combined, I have nothing new or very positive to offer. On two occasions, in my own experience, when ordinary care had been taken by a good examiner, bacilli which previously had been present in considerable numbers, subsequent to treatment had notably decreased, or completely disappeared. In other cases the examinations made did not permit me to form a reliable judgment in this regard. As to whether creasote interferes with the bacilli locally, or through the circulation in virtue of its antiseptic properties, or whether, in addition to its promotion of sclerosis, it merely favors general nutrition while acting happily upon secondary, though important symptoms, I am not prepared absolutely to affirm. I would add, however, that I am inclined at present to accept the latter, rather than the former belief. This conviction is based mainly upon what seems to me to be a fair and proper interpretation of

¹ This view would appear to be that, also, of Spencer, who, in speaking of the antiseptic treatment of phthisis, concludes that in our treatment it is our aim to promote healing of the damaged lung tissue by means of *fibroid substitution*. (British Medical Journal, January 28, 1888.)

numerous facts observed by myself and others already referred to. It is important to note, however, that I am now decidedly of the opinion that patients, as a rule, improve more rapidly and surely upon the conjoined treatment by means of antiseptic inhalations and creasote given internally, than they do upon either treatment by itself. I have attained this conviction by carefully watching the effects produced when one or other of these methods was abandoned for a time, and afterward when both were resumed and systematically used. It is probable, therefore, that in many cases the frequent, or prolonged, topical application of creasote vapors to the respiratory tract in a considerable area is of undoubted utility and, after a manner, not *very* different from what I have previously described.

Another fact of great practical importance relates to the purity of the drug and the source from which it is obtained. For the information of those whose attention has not been directed closely to this matter, I would state that in New York City (and I presume elsewhere) much of the creasote which is dispensed is simply crude carbolic acid, obtained from the distillation of coal-tar oil, and commonly called "commercial creasote." It has neither the color, the odor, nor the chemical properties of *wood* creasote, or, what is preferable, of the creasote which is obtained from the distillation of beechwood-tar. I am glad to believe that the ordinary dispenser, in making this pernicious substitution, is himself a victim of ignorance and not of knavery—at least so far as what pertains to the therapeutic use of the drug. And yet in moderate, or large, doses, and particularly with sensitive patients, there is a very great difference in the effects of the two drugs. The one, viz., carbolic acid, may prove distinctly injurious, if not poisonous; whereas the other, viz., wood creasote, when judiciously employed, should be followed by favorable, or perhaps negative results, but rarely, if ever, by manifest bad consequences. I am credibly informed that the only creasote in the market to-day which responds favorably to all, or most, tests of absolute purity is that of T. Morson & Son, an English product, which is mentioned on page 407 of the *United States Dispensatory*, and that of Merck, a German product. Of the two products, Morson's is the one which I prescribe and believe is purest. In order to avoid uncertainty, or risk in prescribing, it is essential at present to designate definitely the creasote that you wish

to employ, and afterward see to it that your prescription is taken to a trustworthy pharmacist.

Through inattention to the foregoing necessary precautions, in two instances reported to me, somewhat poisonous effects were produced by the internal use of carbolic acid, when it was intended that creasote should be taken.

In my judgment, whenever creasote is prescribed, it should be taken, at least at the commencement of treatment, in small or moderate doses. These doses should be continued a long while, or only gradually increased.¹ If an attempt be made, especially at first, to take larger doses of creasote, in the majority of cases stomachal intolerance will soon follow and we shall be obliged either to diminish the amount prescribed, or lessen the frequency of doses, or abandon the treatment altogether for a time. My experience is different from the *personal* experience of a Russian physician, Dr. Bogdanovitch, who found no appreciable benefit from small doses (half a grain four or five times a day), but who, when "he began to take creasote in gradually increasing large doses, beginning with four grains a day, and reaching in about two months a daily dose of forty-four grains, there took place fairly rapidly an unmistakable and permanent improvement in his symptoms."² It is, also, different from the reported observations of Sommerbrodt and Guttmann, from the perusal of which Bogdanovitch took his inspiration.

The daily amount of creasote prescribed by me for adults, in private practice, has varied usually from three to six minims, and continued frequently many months without increase, or interruption, or any evidence of intolerance. The ordinary dose of half a minim is repeated every two or three hours. It is given with whiskey and glycerine, according to the following formula,³ which is that of Jaccoud, the sole difference being that I use whiskey where Jaccoud employs cognac or rum :

R.—Creasote (beechwood)	.	.	.	.	.	mij.
Glycerine	.	.	.	.	.	ʒj.
Spts. frumenti	.	.	.	.	.	ʒij.—M.

S.—As directed.

¹ This opinion is corroborated by that of Spencer (British Medical Journal, January 28, 1888), who says that the influence of the antiseptic should be continuous and prolonged.

² British Medical Journal, March 10, 1888.

³ Whenever the mixture is taken according to this formula no addition of water is required, and it reminds one, by its smoky odor and flavor, of slightly sweetened Scotch whiskey.

In hospital practice, for convenience' sake, or rather so as to give the patient a sufficient supply of medicine to last until his next visit to the hospital, I prescribe teaspoonful doses, each teaspoonful containing one minim of creasote, and to it are added two teaspoonfuls of water. This addition is made to prevent irritation of the throat in swallowing the dose. It also obviates irritation of the stomach in some instances. The dose is ordered every three hours, so that if it is taken with absolute regularity, the patient gets eight minims of creasote in twenty-four hours. This is rarely the case, as, owing to sleep or other cause, one or two doses are usually omitted.

The formula which I have used in prescribing creasote is a very good one, as in it the creasote is perfectly dissolved and *sufficiently diluted*, thus preventing it from being unpalatable or irritating. The perfect *solution* of creasote and *its large dilution* are both strongly insisted upon by Bouchard and Gimbert in their original article as being essential points in rendering it acceptable to patients. In Jacoud's formula, as slightly modified by me, we obtain the well-known beneficial effects of whiskey and glycerine in the treatment of phthisis. I regard it, therefore, as superior to the following, which is the one adopted by Fräntzel:¹

R.—Creasote	m _l xv.
Tinct. gentian.	m _l xj.
Spts. vini rect.	3vj.
Vini xeres	q. s. ut fiant 3iv.

S.— $\frac{3}{4}$ ss ter die ex aquâ.

It is well to add that only pure whiskey and glycerine should be employed, and as the latter is frequently adulterated, and hence injurious, I would indicate Price's or Bowers's glycerine as being probably the best.

I have also frequently prescribed creasote in gelatine capsules combined with cod-liver oil. These capsules are now made by several manufacturers abroad, and may be readily reproduced in the United States.² Each capsule contains about a minim of creasote. They should be taken fifteen or twenty minutes after meals. At other times they are apt to cause dyspeptic symptoms. Two or three at a dose mark the limit of stomach toleration ordinarily, and in only one

¹ The Year-book of Treatment for 1887.

² Already one pharmacist in New York, to my knowledge, makes them.

or two instances have I been able to increase this number without occasioning digestive disturbance. For these reasons the capsules do not appear to me, at present, as eligible a form to prescribe creasote as the mixture of creasote with whiskey and glycerine.

If creasote be administered in cod-liver oil, the amount of oil must be at least one drachm to the minim of creasote, in order to obtain a proper dilution of this drug. Otherwise, if cod-liver oil be indicated for a patient, it is desirable to give it separately, and order the creasote to be taken in the manner first advised. This I have done in several instances, and particularly when, despite the use of creasote, with complete stomachal tolerance, there has been continued loss of flesh.



In a very large proportion of cases of pulmonary phthisis that I have treated during the last year or two (and in every one of the cases hereinafter analyzed), whilst creasote was taken internally, antiseptic inhalations were also used by means of the perforated zinc inhaler

which is here pictured. As a rule, in the beginning, the inhaler was worn during fifteen or twenty minutes every three hours, and from ten to twenty drops of the inhaling fluid were poured on the sponge of the inhaler at least three times in twenty-four hours. The inhaling fluids most frequently employed by me were :

1. A combination of iodoform, creasote, eucalyptus, chloroform, alcohol, and ether, seemingly a somewhat formidable mixture in view of its numerous constituents, but a very rational one when explained in detail.
2. Iodine, creasote, carbolic acid, and alcohol.
3. Creasote and alcohol.

The first one of these inhalations is a modification of one taken by me from Lauder Brunton ; the second is that of Dr. Coghill,¹ and, according to R. Douglas Powell,² "is a favorite and much used one;" the third is, so far as I know, my own combination.

The following are the precise formulæ :

R.—Iodoformi	gr. xxiv.
Creasoti	m. iv.
Ol. eucalypti	m. viij.
Chloroformi	m. xlviij. ³
Alcoholis aetheris	aa q. s. 3ss.—M.
R.—Tinct. iodi ætherealis,	
Acidi carbolici	aa 3ij.
Creasoti . . . . .	. 3j.
Sp. vini rect.	ad. 3j.—M.
R.—Creasoti . . . . .	. 3j.
Alcoholis	ad. 3ss.—M.

I desire now to direct your attention to the tabulated statement of the results obtained by me from the creasote treatment of pulmonary phthisis.

The total number of cases which have taken creasote mixture and used creasote inhalations (simple or compound) to which I have reference, are: At the New York Hospital, out-patient department, 143;

¹ Antiseptic Inhalations in Pulmonary Affections. By J. St. Clair Coghill, M.D. Brit. Med. Journ., 1881, vol. i. p. 841.

² Loc. cit. p. 308.

³ The chloroform in this formula was originally added by me on account of its value as a preventive of cough. I am glad to find that, according to Salkowski (Deutsche med. Wochenschr., April 19, 1888), it is also most available, from its volatility, amongst the ethylic chlorine compounds, as a respiratory antiseptic.

in private practice, 19. Besides, I have an interesting letter from my late house-physician, at St. Luke's Hospital, Dr. Charles H. Collins, who, at my request, looked carefully over the records of that institution and found that during the last two years about 150 cases of phthisis pulmonalis have there been put on the creasote treatment, and a large percentage of these cases he has been able to watch. The points of interest observed by Dr. Collins, and the reflections made by him in his letter to me I will reproduce, after giving an analysis of my own observations—recorded by myself with some care.

Of the total number of 143 cases seen at the New York Hospital, there were 51 cases of pulmonary phthisis at the first stage of the disease; 18 cases at the second stage, 18 cases at the third stage; there were also 4 cases of laryngeal phthisis, 1 case of fibroid phthisis, and 1 case of acute phthisis. The total number of cases, therefore, in which the diagnosis is mentioned of the stage and nature of the disease, is 93—leaving 50 cases of pulmonary phthisis in which the stage of the disease is *not* mentioned. Of the whole number of cases seen at the Out-door Department of the New York Hospital, 54 were females, 89 were males.

Of the 93 cases mentioned, there are 47 cases in which some notes were made as to the effect of treatment, of more or less value. Of these 47 cases, I have arranged in tabular form such data as seemed to me to be of any interest. I have also done a similar work in regard to my 19 private cases. From these tables I shall now proceed to take such facts as result from their study.

The duration of time during which these cases were treated varied from one week to two years eleven and a half months. Of these 66 cases, 45 were males, and 21 females. 37 cases were affected with the first stage in a manifest manner, as shown by the physical signs and the rational symptoms; in 3 cases the physical evidences of disease were doubtful or negative, although the rational symptoms pointed plainly to beginning phthisis; in 6 cases there was found an evident second stage of phthisis; in 1 it was a question whether the case had advanced so far as the second stage; in 11 cases the disease had attained the third stage; in the remaining cases the diagnosis of the stage of disease is not recorded.

In cases of the first stage of the disease, 24 had their cough *improved*, sometimes very much, sometimes only a little; in 3 cases the

cough did *not* improve; in 10 cases the cough was *cured*. In several cases in which the cough was improved, the sleep was quieter, and previous insomnia evidently depended largely upon cough and expectoration; in a few instances, even though the cough improved, the sleeplessness did not improve, and evidently was independent of the cough. In those instances in which the cough is stated as being cured, I cannot say in all of them how long the cure lasted; in some, I know, the cough returned, but was again cured by the use of creasote in mixture, and as an inhalation. In many cases at different stages (first, second, and third)—17 in all—no mention is made of the effect of creasote on the cough. In some of these instances it is possible that the question was *not* asked; in many of them it is probable that *no mention* is made, because the cough remained *stationary*. What I say here for the cough, I should be obliged to repeat for other symptoms, and I would, therefore, offer this as an explanation where my silence shall point to it, without my wearying you by similar repetition.

In 3 cases of phthisis at the second stage, cough improved either slightly or very much. In the other cases it remained stationary; in no case did it increase. In 6 cases of phthisis at the third stage, the cough improved notably in 4; in 1 the improvement was very great; in 1, instead of improving, it became worse.

As regards *night-sweats* at the first stage, 8 cases were cured; 4 improved; 3 remained stationary; in 1 case they increased; in 6 cases the patient never suffered from them; in 15 cases no mention is made of this symptom. At the second stage, 1 case was cured, 1 remained stationary. In a doubtful case of second stage, there was great improvement in one instance. In 4 cases no mention is made. At the third stage, 1 case was cured, 2 improved (1 greatly), 1 patient never had night-sweats, in 7 there was no mention of them.

With respect to dyspnoea at the first stage, 15 cases were improved; 4 cured, 1 case remained stationary, 1 case never had dyspnoea; there is no mention in regard to this symptom in other cases. At the second stage, 1 case was cured, 2 cases improved, 1 case remained stationary; in 2 cases no mention is made. At the third stage, 5 cases improved; in 6 cases no mention is made.

The sputa at the first stage diminished in quantity, and improved notably in appearance in 18 cases; in 5 cases the sputa disappeared;

in 3 cases there was no diminution in amount of sputa; in 1 case the sputa increased in quantity; in 2 cases, in which bacilli had been found in the sputa, later on they could not be found. In 3 cases the bacilli were looked for merely to verify the diagnosis, and they were not looked for later on to see if they had disappeared.

Three times the sputa did not change in appearance or quantity, but were raised more easily. The changes in appearance of the sputa were often quite remarkable, and from green and yellow they became white and frothy; less tenacious, less thick. When the sputa diminished in quantity and were less viscid, cough decreased and sleep often improved. At the second stage, the sputa diminished notably in quantity in 3 cases; in 1 case, although they did not diminish much in quantity, they changed their appearance for the better and became less thick and tenacious. At the third stage, the sputa diminished much in quantity in 4 cases.

The *appetite* was improved in 17 cases at the first stage; it remained stationary in 3 cases; in no case did it notably diminish. It improved in 2 cases at the second stage; in 1 case it diminished. In 4 cases at the third stage, appetite increased. In 3 cases at the second stage, and in 7 at the third stage, there is no mention of the effect on appetite.

In 2 cases dyspepsia was occasioned by creasote; in one of these cases the mixture was continued, and the dyspepsia soon improved; in the other case capsules of cod-liver oil and creasote were given, and had to be abandoned altogether.

In 2 cases nausea and gastralgia were evidently caused by the creasote mixture, which was stopped for a while. In 3 cases the medicine caused constipation, in 1 case the constipation remained the same; in 3 cases the constipation was cured by creasote mixture.

In 2 cases diarrhoea was brought on; in 1 case there was considerable pain in the bowels; in 3 cases there was no effect upon the bowels at all; in 2 cases the bowels became more regular; previously there had been alternate attacks of constipation and diarrhoea.

The effect on weight was very notable in many instances. In 18 cases at the first stage, there was increase of weight, the amount of increase ranging from one-half pound to twenty-five pounds. Two, three, and four pounds increase was quite common. One patient gained three pounds in six weeks' treatment. In 4 cases weight

remained stationary. In 3 cases weight was lost, in 1 of these in moderate amount (about two and one-half pounds), due to an acute attack. Previous to this attack, weight had been stationary. In 2 cases there was a loss of five pounds; in 1 of them four pounds were subsequently regained by three weeks' use of malt and cod-liver oil. At the second stage, in 2 cases there was some loss of weight; in 1 the weight remained stationary; in 3 cases there was no mention of it. At the third stage, there was increase of weight in 2 cases, loss in 1, stationary in 1, no mention in 7.

In a large proportion of cases—46 in all—no mention is made of haemoptysis. In 11 cases at the first stage, no haemoptysis occurred during treatment; in 3 of these cases haemoptysis had occurred previously, small or large in amount. In 4 cases a slight, or very moderate spitting of blood occurred, but in all these cases one or several hemorrhages from the lungs had taken place before the creasote treatment was begun. In 1 case at the second stage, hemorrhage occurred during treatment; but in this case several hemorrhages took place before treatment was instituted. In 5 cases no mention is made of hemorrhage. In 4 cases at the third stage, no hemorrhage occurred either during, or before treatment with creasote. In 7 cases no mention is made of it. It seems probable, therefore, from the foregoing statements, that whilst creasote may not, except to a very limited extent, control pulmonary hemorrhage, it does not promote, or occasion it, and may, therefore, be given with perfect safety to those patients who are liable to these recurrences, and, indeed, during the period they actually take place.

As regards elevation of temperature, no record was made in 41 cases. In the others, as well as could be determined, the following is probably a correct statement: In 7 cases fever was cured under creasote treatment, viz., it disappeared and did not return during the time the patient was under observation. In 9 cases fever was notably lessened. In 1 case of these 9, the fever returned for a time when the patient had an acute exacerbation of the disease, which occurred several times during many months, and did not always appear to be occasioned by imprudence, or cold, but was rather the natural outcome of the disease. In 8 cases, so far as could be observed, no perceptible effect was produced on the fever, and it remained about stationary. In *only* 1 case did the temperature rise whilst the patient was under treatment, and then only to a slight degree.

It is fair to assume that in creasote we have, in the treatment of phthisis, an antithermic agent of no mean value.

In 35 cases there was no mention of the effect of the treatment on the strength of the patients. In 26 cases there was manifest improvement in strength. In 6 of these the strength is spoken of as "returned," or "regained;" in 3, as *greatly* improved; in 17 as notably improved. In 1 case strength remained stationary; in 4 cases *strength* diminished.

Pains in chest were cured 8 times; improved, 13; stationary, 2; none in one instance. In 42 cases no mention is made.

Pains in throat were cured in 6 cases, improved in 7, made worse in 3, remained stationary in 2. In 5 cases patient never suffered from pain in the throat; in 43 cases no mention is made. In 1 case of cure it was attributable to the inhalations. In 3 cases in which the pains in the throat improved, the previous hoarseness diminished, more or less, or disappeared entirely.

In the 3 cases in which the pains in the throat became worse, they were thus caused by the local irritating effects of the mixture. In one instance the voice became weaker and more hoarse.

The pulse is noted as being less frequent and stronger in 6 cases; in 2 as normal; in 2 as showing no apparent change and remaining frequent. In the other instances no mention is made.

Generally speaking, there was no change in the appearance, or amount of urine passed. On only one occasion did it apparently increase considerably in quantity owing to the use of creasote; on another it became clearer, where previously it had contained considerable deposits of urates; in a third instance the urine became more turbid. On many occasions it was tested for albumin; either none was found, or the amount previously existing in the urine remained the same. No casts were observed, in repeated examinations, which could be ascribed to the use of creasote, nor did any pronounced dark discoloration occur, such as may follow the internal use of *coal-tar* creasote. In no instance could I detect the odor of creasote in the urine, and in only one did ordinary tests reveal its presence. This was a case of acute phthisis in a young woman who was taking at the time sixteen minims of creasote daily and who was, also, making frequent use of creasote inhalations.¹

¹ Case is reported further on.

As regards physical signs, I have only 2 cases at the first stage, to report of complete disappearance of every evidence of morbid condition in the lungs. In two other instances, the signs improved so much that it required the strictest construction not to pronounce them cured. In 10 cases at first, second, and third stages, there was slight or decided improvement in the physical signs revealed by careful examinations of the chest.

This improvement consisted in fewer moist râles heard at the apices, in diminished area of dulness, in diminution of thoracic vibrations, of resonance of the voice, in softened, less prolonged expiratory murmur, which was also of lower pitch. Among the cases which I have reported, there have been, in my opinion, at least four apparent cures, if due consideration be given to the effects produced on both signs and symptoms of pulmonary phthisis. These cases are Nos. 1, 2, 7, and 11.

Dr. Charles F. Collins's report, dated St. Luke's Hospital, May 30, 1888, reads as follows:

"In regard to the creasote treatment in phthisis pulmonalis in hospital cases, I have gone through all the records since the treatment was first begun. The notes in the cases, though accurate, are not complete enough to enable me to make satisfactory tables and to draw positive conclusions concerning special points. Then, also, the previous condition of most of the hospital cases is often very bad in respect to hygienic surroundings, often suffering from want of food and rest, so that after admission to the hospital when improvement takes place it is sometimes difficult to isolate the special value of treatment *per se*. Then, too, there are many cases admitted in the last stages and the condition often without hope, so that any results from treatment are not looked for; to keep the patient comfortable is the only attempt by way of treatment that is available. It is also in hospital cases almost impossible to avoid treating specific symptoms, such as night-sweats, wakefulness, diarrhœa, etc.

"During the last two years about a hundred and fifty cases of phthisis have been put on the creasote treatment, and a large percentage of these I have been able to watch, and the following points may prove of value. It never has been discovered that the drug in any way caused gastric distress or intestinal symptoms. It is pleasant to take, and, in the formula you introduced, patients often ask for it

when leaving and take it for a length of time, and I have never known a patient to dislike the mixture.

"As to urinary and kidney symptoms I would add the following: There has never been any perceptible change in the quantity during the twenty-four hours, and repeated examinations chemically of the urine of patients on creasote have failed to reveal any changes; as far as I can judge, have not known it to cause albumin even though continued for months, and many cases suffering from renal complications when admitted to the hospital show no signs of an increase of their trouble in regard to urine when put on creasote treatment.

"In general, I would like to add that this mode of treatment, the inhalations as well as internal administrations, seems to give better results and be more available than any mode of treatment we have followed out. Many cases leaving the hospital have asked for the prescription, and in cases which I have been able to follow and which have conscientiously carried out treatment, as far as can be judged, there seemed to be a lasting benefit and continued improvement.

"It is a matter of considerable regret that I cannot give you records of a number of special cases, but on account of the conditions above mentioned, truthful records of hospital patients suffering from diseases of this character are always subject to many errors."

Having furnished an analysis of my cases, for any errors in which I crave indulgence, I shall now present an abstract of those histories which seem to me worthy of being recorded.¹

CASE I.—Patient at beginning of treatment had well-marked signs of consolidation at the left apex. These signs disappeared in a great degree, if not altogether; bacilli were no longer found in the sputa; cough and pain in the chest disappeared. Patient continued to suffer from occasional sweats and general malaise, evidently caused by chronic malaria, and which were invariably cured for a time with Warburg's extract.

CASE II.—Patient, at commencement of treatment, had extensive consolidation at the left apex; later the right apex was somewhat implicated; local signs disappeared almost entirely, and all symptoms relieved or, practically, cured, when patient developed a suspicious condition of epiglottis, viz., swelling, redness, and small ulceration (?) on March 15th, which still remains today, May 1st, although slightly improved as regards appearances and symptoms. During time of treatment patient took for *quite a while* ol. morrhuae, or the hypophosphites, was abroad one summer two and a half months, also had occasional irritation to the chest walls with iodine, etc.

¹ The last three abstracts were appended after the foregoing was completely written.

May 15. Throat nearly well, under treatment with caps. ol. morrhuae et creasoti, creasote inhalations, and applications of iodoform and morphine to the larynx; latter apparently most beneficial.

CASE III.—This patient did not show any marked improvement in pains, strength, weight, sputa, etc. On the contrary, the symptoms either remained stationary or *got slightly worse*, except dyspnoea which improved somewhat. Local condition remained stationary.

CASE IV.—This case was certainly one of pulmonary phthisis, first stage at both apices. Besides the physical signs and rational symptoms, the microscopic examination of sputa showed it in revealing the presence of tubercular bacilli. Previous to the use of creasote patient had taken cod-liver oil, maltine, quinine, etc., for a cough which had persisted six months without relief. In this case there was an unquestionable malarial element which was favorably modified by the use of Warburg's extract; still there was no doubt as to the existence of phthisical consolidation at the apices of the lungs to which many of her symptoms were evidently due.

On February 3, 1888, I received a letter from this patient in which the following was contained: "Last autumn and this winter I have had less fever than during previous years. I still have fever sometimes, but in a less degree, and at intervals of three to four weeks. No cough for several months until last week, when I caught cold. It is not excessive and is relieved usually by ten drops of cherry-laurel water. I attribute improvement to your practical treatment and the milk and air of Amityville (here I may say she had enjoyed this milk and air previously for several years and yet no curative result had ensued), and I now enjoy better health than I have during the past six or seven years. This month it is one year since you treated me, and during that time I have gained fourteen pounds in weight."

CASE V.—This patient had suffered from dysphonia and cough for several years; not relieved by continuous use during several months of cod-liver oil and hypophosphites, and a visit to Europe. She had lost flesh and strength. One brother had died from hemorrhage of the lungs. Physical signs were not absolute, but pointed strongly to pulmonary deposit at the apices. In a short time she improved so much as to say she felt almost well. She regained strength, cough diminished, sputa disappeared, and temperature became normal. Patient thinks inhaler did her more good than mixture; believes that one or two loose movements each day are caused by mixture, although appetite is improved and there is no stomachal distress; wears inhaler fifteen to thirty minutes every three to four hours, and adds fifteen drops (creasote and alcohol 3ij-3j) to sponge on every occasion.

Physical examination of chest shows no changes.

CASE VI.—In this case patient had dry, hacking cough four years; felt weak, and had night-sweats and fever. During past six weeks had lost eight pounds in weight. At different times had six hemoptyses. On physical examination there were positive signs of pulmonary consolidation at the right apex, consisting in dulness, prolonged, rough, high-pitched expiratory murmur,

increased vocal resonance, and thoracic vibrations. At the left apex the signs were not quite so well marked, but were nevertheless sufficient to make the pulmonary condition in that region very suspicious. Under treatment with creasote, pain in the throat disappeared, appetite improved, weight increased, night-sweats were cured, and the patient became stronger. One moderate hemoptysis occurred after thirteen weeks' continuous treatment by creasote internally and by inhalations. Cough persists after fourteen weeks' treatment, but is much less frequent and intense. The local condition of the lungs has improved, although there still remain evidences of solidification. During the last two months patient has given up his trade, and is living in the country, where he has out-door employment. He says that his appetite is now excellent and he feels almost well. His throat no longer troubles him, and the pains in his chest (due to cough) have disappeared. He has no more fever, his expectoration is reduced to a very small amount daily. At no time has he suffered from dyspnoea. In order to test the relative utility of the mixture and inhalations, I told him about ten days ago to give up using the mixture, and to rely solely on the frequent employment of inhalations. He returned and told me that he found his cough had become notably worse. I then told him to try the mixture alone, and to abandon the use of inhalations for a time. He came back to me and told me that he was sure he coughed more than when he was using both mixture and inhalations. I then told him to resume both. Patient finds when he uses *inhalations alone*, his throat becomes dry and irritable. When he makes use of creasote *internally*, at the same time that he is inhaling, he finds that his throat does not become dry, and that his cough is less frequent and harassing. In this case, as in many others, it seems to be apparent that the combined treatment is more useful than either treatment by itself.

CASE VII.—This patient had suffered from obstinate cough for years in the fall and winter months, cough disappears in summer; had pleurisy in right side seven years previously. One brother has pulmonary hemorrhages. A month before beginning treatment caught fresh cold, and cough became more severe; suffered from dyspnoea; lost appetite and some weight.

Physical examination showed evident consolidation at right apex. After six months' treatment cough stopped; no sputa; breathing much improved; gained weight. One month ago, through exposure and inhalation of smoke at a fire, got renewed cough and dyspnoea, appetite diminished, and expectoration of white, tenacious sputa returned. Slight improvement in local condition.

CASE VIII.—This patient had been losing strength gradually during nine months subsequent to typhoid fever; had loss of voice, cough, and abundant white and yellow sputa during six months. A cavity was easily made out at right apex, and the laryngeal appearances were typical of phthisis. Under treatment rational symptoms improved in every way; soreness over larynx completely disappeared by frequent use of the inhaler (local application of astringents, iodoform, etc., gave him only temporary relief when frequently

applied), and patient's strength and appearance markedly improved. Subsequently creasote treatment was abandoned, and Bergeon's treatment begun. Under the latter he gained weight rapidly, three and a half pounds in one week, and stated that he felt better (notably stronger) than when under creasote treatment, except for his throat, which again became sore and irritable, and in consequence of this the sputa notably increased. Patient again improved in every way, so far as symptoms were concerned, when he employed inhaler with creasote and gaseous injections at the same time; the latter diminished the number of moist râles in the right lung near, or over, *the seat of the cavity.*

CASE IX.—This patient had a very obstinate cough, and lost considerably in weight; had pains in chest, was hoarse, and expectorated moderately, sputa showed numerous bacilli.

Physical examination showed evident signs of pulmonary consolidation at the right apex. He complained of feeling always tired, had diarrhoea and dyspeptic symptoms, which he attributed to malaria. Under creasote treatment he gained weight, improved in strength, cough diminished, pains in chest disappeared as well as sweats, hoarseness improved. After one and a half months' treatment he went to the mountains of Virginia, and there continued to improve in every way, so that he felt himself almost well again. Later he took fresh cold, and cough became more frequent and intense for a time. Nine months later he informed me (February 26, 1888) that he had been in the mountains of Virginia all the previous summer, and whilst there increased twenty-five pounds in weight and felt much better in every way. During his sojourn in the mountains he used daily gaseous injections after Bergeon's method, and continued use of creasote inhalations, especially at night, but also in day-time. They always relieve his cough almost immediately. "Sometimes he wears inhaler several hours at a time; sometimes nearly all night, even during his sleep." He would not be without it for anything; it relieves his cough and breathing so much, it clears him out so well. Finally, after two months' trial he gave up Bergeon's treatment on account of fistula in ano, and resumed capsules of cod-liver oil and creasote, two after each meal, more than this number gave him dyspepsia. After some weeks he found on account of stomach (dyspepsia) he could not take capsules continuously, but was obliged to take cod-liver oil pure one week, and the following week resume capsules. His stomach again became tolerant. He returned to New York City, October 22, 1888, having normal weight, and did well until one month ago (about January 26th), when he began to lose flesh again. During past month has lost seven pounds, still to-day (February 26, 1888) is stronger than last spring, weighs more, has no fever and no sweats; cough far less troublesome—in fact, only annoys him at night, and is usually readily relieved by use of inhaler; sputa are whiter, less thick and viscid, diminished in quantity; appetite fairly good, and he can do much more work than last spring mentally and bodily. Evidently, therefore, he has improved notably in the majority of his symptoms, although commencing to lose flesh again

during the past few weeks. This loss of flesh patient attributes to pains caused by fistula, other symptoms not being markedly worse.

Examination of chest reveals a considerable area of dulness at right apex in front, in which there are present increased vocal resonance, prolonged, rough expiratory murmur, hyper-resonance of cough; some crackling sounds heard during cough in first right intercostal space (which seems to indicate local softening). Right side of chest expands insufficiently, and the lung is evidently bound to chest walls by old adhesions. Left lung is healthy. I advised patient to leave New York City as soon as possible, and to return to the mountains of Virginia. I also advised him to continue use of inhaler, and to use it many times in twenty-four hours, even though cough should not be very troublesome. I also urged him to continue use of creasote internally, 3ij at least four to six times in twenty-four hours. Cod-liver oil was, also, prescribed in addition to capsules if his stomach would support it. Except for chest condition, locally, I would find this patient improved in every way; cough better, appearance better, no sweats, increased weight over that of last spring, stronger, sputa changed favorably, and much less in quantity. The chest condition is not obviously improved; on the contrary, it is apparently somewhat worse.

CASE X.—This patient was a thin man of small stature, and had slight frame from birth. Two years ago he began to suffer from cough, moderate expectoration, pain in the chest, and loss of weight (five pounds), night-sweats at times, repeated slight hemoptyses. Took cod-liver oil and hypophosphites and several other drugs for cough, and continued them a long while; they never benefited him nearly as much as the creasote mixture and use of the inhaler; began this mixture under my care three months ago, and took it nearly a month regularly. During that time got rid of cough entirely, appetite improved, sputa came up easily, diminished in quantity, and from being green became yellow, pains in chest and throat disappeared, gained four pounds in weight, night-sweats disappeared, fever cured, and gained notably in strength. During nearly two months patient felt as well as ever. Within a few days has caught cold and again has cough, green sputa, and is constipated. When cough was absent, all signs of bronchitis disappeared. Prolonged high-pitched expiratory murmur with rough tone remained. Dulness over certain areas and increased vocal resonance did not disappear. (*Note:* Sputa under microscope within past few days showed numerous bacilli.)

CASE XI.—When case came under my care patient had suffered from obstinate cough during many months; slight expectoration, no fever, some loss of weight.

Physical examination showed consolidation at the right apex; patient felt very weak; she was put on creasote treatment internally and by inhalation. Six months later cough had disappeared and patient felt well, her weight had increased two pounds (during three months of this period she was at North Elba in the Adirondacks). Physical signs were favorably modified, the ex-

pirations being less prolonged and harsh. In month of September, seven months after treatment was begun, patient caught a cold, with increase of cough and expectoration. This yielded in a few weeks to the creasote treatment. Again patient did very well during a period of six or seven months during which time she had no cough or expectoration; she then took another cold. One month after the occurrence of this, I saw her again, and found the local condition again somewhat worse. Indeed, there was evidence of some implication of the left lung. Upon close questioning of the patient I discovered she intermitted her medicine when she thought herself well and the cough had disappeared. Eight months later (May 12, 1888) I received a letter from this patient, who during time mentioned had been residing in Nashville, Tenn., from which I take the following: "I am glad to be able to send you a favorable report of my health. During the winter I had only one cold, it was very severe, but I have now gotten completely over its effects. After seeing you last September, I took creasote internally for about two months, and again for one month in February when I caught cold. The only trouble I have now is, that reading aloud sometimes makes me hoarse, especially in the early morning. My appetite is very good, and I can draw long breaths without difficulty, bowels are regular, no fever or sweats, and I have been able to accomplish more work without fatigue than during the two preceding winters. I have not been weighed for some time past, but I know that I have not lost flesh."

CASE XII.—Saw case first time seven years ago. At that time patient had evident tubercular infiltration of the different portions of left lung. Four years previously to date, when I saw her, she had suffered from pleuritis on the left side. At the time first mentioned, and after making trial of cod-liver oil, iodide of iron, etc., internally, antiseptic sprays to throat and counter-irritation to the chest; finding it did not progress favorably, I gave her the creasote mixture of the Pharmacopœia ʒij every four hours. The effect of this mixture, during the six weeks she took it, was to lessen pain in the throat, to diminish amount of expectoration, to lower temperature, to decrease frequency of cough, and to make patient feel stronger and in better health and spirits, although body-weight remained stationary.

Six years later patient came again under my professional care, mainly because she was suffering from laryngeal phthisis at the stage and in the form of ulcerative disease. Since I had seen her she had lost much flesh and strength, and had suffered for several years from presumably tubercular disease of the spine, which, under judicious treatment, had very greatly improved. Patient's spirits were very good, as he was by nature very buoyant and hopeful. I immediately placed patient on mixture and inhalations of creasote, and made applications to her larynx of iodoform and morphine. After some weeks' treatment patient went to the mountains for the summer, during which time treatment was faithfully continued. Five months later she returned to New York not materially improved so far as lung or throat condition was concerned. The apex of the left lung was the seat of a moderate size phthisical cavity, and the right lung at its apex showed evident consolidation. One or

more of the ulcers of the larynx seen last spring were undoubtedly cicatrized, but new ones had appeared. She complained of dysphagia, of soreness over larynx, and of obstinate cough. Patient remained under my care, in New York, from October, 1887, until December, 1887, when, unimproved, she went to Colorado Springs. During these two months and subsequently she continued creasote treatment most of the time.

On January 27, 1888, Miss M. wrote me a letter, from which I take the following "My throat is much better and seems to be improving all the time, though slowly, of course. Dr. T. said yesterday that the throat looked better than it has done since I have been here. The ulcer is better and there is much less swelling. Dr. T. does not think it necessary to change the treatment—*i. e.*, the creasote mixture and inhalation in any way, as I am doing so well now." Later on, in same letter, she speaks of improved power of deglutition and of her ability to swallow eggs, meat-balls, and bread and butter. I received a letter from Dr. T., dated April 23, 1888, in which he speaks of new ulcer in larynx doing well, and states "no material change in pulmonary lesion," although patient has lost strength. Pain in throat and ear were present, and patient suffered from occasional attacks of dyspnoea, probably cardiac in origin. For the bright side, Dr. T. speaks of the appetite as wonderfully good, and of the patient as being "bright and cheerful always." About six weeks before writing me the creasote mixture (Jaccoud's) had been discontinued on account of dysphagia, and during a few days the inhalations were omitted, but later were resumed. Dr. T. mentions that the pulse, which had ranged a few weeks since as high as 130 occasionally, now keeps steadily about 96, and is of fair strength and volume.

Patient is still at Colorado Springs (Dec. 1888) and has greatly improved in health. I am informed by her brother that latterly she has given up the creasote treatment, but for what reason, he could not tell me.

CASE XIII.—This patient, who had lived on a ranch in Wyoming Territory for several years, had suffered much from exposure, bad food, mental anxiety, etc. He had a cough for several months, and physical examination of chest showed signs of incipient phthisis. He was immediately put on creasote and cod-liver oil, which was subsequently changed to creasote mixture on account of stomach intolerance. Five months later he had improved somewhat in weight, strength, and general appearance. The appetite, cough, and dyspnoea were also somewhat improved, as well as the local signs in the chest. Owing however, to the lack of fidelity on the part of the patient to the use of the creasote mixture and creasote inhalation, he did not improve as much, I am confident, as he would have done otherwise. During the winter I sent my patient to South America and back for the good effects of an ocean voyage. Apparently he derived no benefit from it.

Patient died of advanced pulmonary phthisis on December 9, 1888.

CASE XIV.—This patient complained of weakness, cough, abundant sputa, hemoptysis, and loss of flesh during several months. Physical examination showed consolidation at the right apex. Immediately put on inhalation of

creasote and alcohol, equal parts, ten drops to be inhaled every three hours. In addition, she had, as internal treatment, at different times, cod-liver oil, the hypophosphites, and arsenic; also, counter-irritation to the chest walls. At the end of a month, patient reported slow fever in evenings, cough diminished, sputa more foamy, and less thick and green than they were previously. One hemoptysis (slight). Sleep improved on account of diminished cough; appetite good; strength improved. Less tightness of chest. Slight improvement of local condition of lungs (once or twice during the month, when patient was using the inhaler twenty minutes every three hours, and renewing the drops each time throat was irritable and cough increased, by decreasing time to ten minutes, and pouring drops on sponge of inhaler less frequently, cough again lessened, and was not so distressing). *Note:* At first, during several days, in a certain proportion of cases, cough will be increased by inhaler; later, it will usually diminish or disappear.

CASE XV.—This patient came under my care twenty-two months ago. At that time she had a cough, abundant purulent sputa, loss of flesh, slight daily rise of temperature, occasional chilly feelings, and was very weak. She had never spat blood. The right lung contained a quite large excavation at the apex. The left lung was in fairly good condition, showing a certain amount of pleuritic thickening and generalized bronchitis of the larger tubes. This patient, who had tried extensively cod-liver oil, the hypophosphites, and appropriate changes of climate, was placed by me on the mistura creasoti and creasote inhalation, under which treatment many of her symptoms improved, notably during the summer. From that time until April 22, 1888, a period of twenty-one months, I had little or no knowledge of her, when her husband wrote me a letter from Kittrell, N. C., from which I extract the following: "We are keeping up the fight bravely, in Mrs. L.'s case, and I can almost say she is as well as two years ago. These two years have been years of varied treatment with medicine and climate. After leaving New York, in 1886, we continued your treatment (*i. e.*, creasote mixture and inhalation) for some months. I think the creasote internal treatment was of unquestioned value. The stomach was, and continued in better condition for a long period, than it had been for some years. Of the inhalation, I cannot say so much. Its effect, after continuous use, was too drying, irritating to the throat, due, I presume, to the ether. It had to be suspended frequently, but when resumed, produced the same results, and, after a quite severe acute attack it was definitely, under her physician's advice, given up. Since then her treatment has varied much. For several months the Bergeon treatment was used with very questionable results. She remained in St. Louis all the winter of 1886-87 in comparatively good health. Last summer we spent in Dublin, N. H., where we remained four months without calling a physician." "Mrs. L.'s left lung is absolutely sound. The breaking down of the right lung has not apparently increased. Her weight is about the same as two years ago, and strength not perceptibly less. She walks two or three miles on a level without fatigue, though, of course, any up hill produces shortness of breath." Throughout

this whole period there has been a slight evening fever, though ordinarily imperceptible to her, say half a degree to a degree; in the acute attacks rising to two or three degrees. She sleeps better; appetite better; coughs less at night than two years ago, and her stomach and digestion are, on the whole, better, though, of course, subject to occasional slight disturbance.

Early in May Mrs. L. came to New York, and I saw and examined her on two occasions. In reply to my questions she says she is stronger, coughs less, expectorates less, and sputa whiter in appearance, and has a better appetite and digestion than two years ago. Her former night-sweats are cured, and at present she has little or no rise of temperature. Her general appearance is much improved, and to look at her one would hardly suspect grave disease. She has, indeed, gained several pounds in weight during the past three years. The cough at present annoys her very little during the day, and the cough and expectoration are principally limited to night and morning, when she empties her cavity. Physical examination of chest showed that the cavity at the apex of the right lung has not contracted in a very notable manner during the past two years. It seems to be empty, as few or no gurgles are heard over its site. Left lung is apparently in quite good condition relatively, although expiration is prolonged, high-pitched, and harsh under left clavicle. The left lung is doing double duty, as is shown by the extension of resonance and the very complete dilatation of the parenchyma. The area of the left lung, by its inner margin, goes considerably beyond its normal limit toward the right.

On several occasions, latterly, this patient was obliged to interrupt the use of creasote internally, because it apparently caused unpleasant cardiac palpitations after taking it a week or ten days regularly. I ordered her to take one grain strophanthus tablets the next time she experienced palpitations whilst taking creasote internally, and to repeat them four times in twenty-four hours, hoping in this manner to obviate the unpleasant symptom and to be able to continue a useful remedy.

Patient died in New York, under my care, Nov. 3, 1888. Dr. G. L. Peabody made the autopsy in my presence, and found the intra-pulmonary conditions to be essentially those which I had recognized as existing before death.

CASE XVI.—This patient is a lady, nineteen years old, who resided at Farmington, Conn., when she came to see me professionally, April 12, 1887. She had been nursing during several weeks, a brother who died of advanced pulmonary phthisis, at the age of thirty years. During the illness of her brother my patient had endured much fatigue and anxiety. She lost her appetite, a considerable amount of flesh, and began to suffer from an obstinate, dry cough. Examination of her chest revealed the physical signs of pulmonary consolidation at the left apex. Immediately she began the use of creasote mixture and creasote inhalation.

On May 24, 1887, there was little improvement in symptoms. On May 12, 1888, nearly one year later, I received a letter from this lady, who was then in Georgia, who writes: "I came south last September after passing the

summer in Connecticut. I took the creasote mixture and inhalations until I came south. Since then I have been quite well, and gained *in weight* until about a month past. I think it is due to my taking cold and being so very busy. I am thinking of sending home for the creasote mixture. I am very glad you asked me to give a full account of myself, as I wanted you to know that I still expectorate every morning and often during the day."

CASE XVII.—This patient called to see me first on October 27, 1887, in company with his medical adviser, Dr. S. W. Gerow, of New Paltz, N. Y. He had a tickling cough lasting eight months, with some improvement during the summer, but never entirely disappearing, had lost some flesh and strength. Expectoration very scanty, no hemoptysis.

Examination of right lung gave all the physical evidences of the first stage of phthisis. Creasote treatment was advised. On May 24, 1888, seven months after beginning this medication, I received a letter from Dr. Gerow, from which I extract the following verbatim: "The patient, S. G. J., did not use inhalation, but commenced at once the use of creasote as advised and with the best of results. Cough gradually improved, appetite and weight increased, and he has again resumed his usual occupation of bookkeeper. Has at present very little cough, some hoarseness. The area of dulness in apex of right lung much less."

CASE XVIII.—This patient came to consult me in regard to his throat at the request of Dr. Henry Schweig, of New York City. He was suffering from dysphonia, dysphagia, some dyspnea, loss of flesh, slight elevation of temperature, moderate expectoration and cough, and slight night-sweats. On examination I found an advanced oedematous condition of laryngeal phthisis and evidences most distinct of pulmonary consolidation at the right apex. Under creasote treatment internally, this patient improved in a remarkable manner. His cough became far less troublesome, his pain in throat disappeared almost entirely, his power of deglutition improved, his dyspnoea was lessened, his general appearance was improved, and from pale and waxy looking, he became quite healthy in aspect. The sputa did not decrease, nor were they modified favorably in appearance; expectoration was made easier.

Patient said that he felt very well, except for incomplete loss of voice and considerable remaining dyspnoea due to the intra-laryngeal condition, which was still that of pronounced swelling and stenosis due to oedematous infiltration. Examination of chest after one month's treatment revealed much smaller area of dulness at the right apex, less hyper-resonance of the voice, disappearance almost of bronchial breathing. Larynx was also improved, and the oedematous condition of the arytenoid cartilages had diminished, and there was less muco-purulent secretion visible locally. (This improved condition of the larynx was presumably due, to a large extent, to the local treatment of Dr. Schweig, which consisted in two or more applications of the galvano-cautery to the infiltrated arytenoid cartilages and usual applications of sprays and powders locally.) I feel constrained to add that the

sputa of this patient, although examined carefully by Dr. Louis Heitzmann, did not reveal the presence of *tubercle bacilli*, but merely the *microbes* (staphylococci and streptococci) of *ordinary inflammation*, which were found in relatively large numbers, pointing to the severity of this condition. This fact has, perhaps, an important bearing on the *correct translation* of some intralaryngeal conditions accompanying pulmonary phthisis, as showing their non-tubercular nature, and the possibility of their being greatly and favorably modified by local treatment. This patient died about six months subsequently of laryngeal and pulmonary phthisis.

APPENDED CASES.

CASE XIX.—Lizzie H.¹, aged thirty-one, United States, school teacher.

Oct. 26, 1887, patient admitted to hospital. Until April, 1887, enjoyed good health, then began to have cough and expectoration, occasional night-sweats and diarrhoea. In the fall of same year symptoms became more marked and expectoration became muco-purulent, formerly white and frothy. She, during this time, has lost flesh and grown much weaker, being unable to do any work. On admission patient was very feeble, unable to leave her bed. Examination of lungs showed *signs of softening at both apices*. Immediately was put on creasote treatment. Night-sweats at first were frequent, at the end of four weeks became less so, but returned from time to time; expectoration and cough diminished; by slow degrees strength began to return. Appetite, as a rule, good, but frequently for several days there would be a distaste for all food. Patient remained in hospital for five months, and was greatly improved, being up all day, slept well at night, weight increased, and appetite more regular.

On March 5, 1888, patient was able to take the journey to Colorado Springs, with but little fatigue, and improvement there has continued, the same treatment being kept up. In addition to the above it may be said that various and distressing symptoms were treated from time to time symptomatically.

CASE XX.—Victor D.², male, aged forty years, single, Belgium, teacher. Admitted to hospital December 8, 1887. Previous history as to time somewhat indefinite; probably less than one year. During last six months has lost considerable flesh and strength, some cough, worse last few weeks, with night-sweats and dyspnoea. Changes at both apices; expiration prolonged, raised in pitch; increased voice and breath sounds; few moist sounds and some pleuritic râles.

14th. Patient was put on creasote treatment internally and inhalations. In addition to the above, for almost two weeks, patient was put on potass. iodid. and hydrarg. biniodid.

January 12, 1888. Having been on creasote treatment nearly one month, patient left hospital: cough, night-sweats, and dyspnoea were much better, and treatment was continued at home.

¹ Case reported by Dr. Charles F. Collins.

² Case reported by Dr. Charles F. Collins.

May 4, 1888. Patient came to the hospital and reported himself as being in better health than for some time past. He takes a long walk every day, followed by no fatigue; appetite and digestion are good; there is no cough, expectoration, or night-sweats, and weight has been increasing.

CASE XXI.—Acute pneumonic phthisis in a young woman twenty years of age, following first child-birth. In this patient breaking down of lung tissue progressed very rapidly, so that at the end of one month a cavity had formed at the right apex and another one in the lower lobe of the left lung. There was much cough, sweats, purulent expectoration, rapid loss of flesh and strength, and continuous high temperatures. Patient was put on combined creasote treatment, and improved for two weeks in a very manifest manner. Her cough diminished, expectoration diminished, and temperature was lowered. Her strength also augmented considerably; she then took a fresh cold and her improvement ceased for a time. On several occasions her sputa were examined, and each time a considerable number of bacilli were found. As to whether they diminished in number under treatment could not be satisfactorily determined.

The points of interest in this case were mainly two: First, patient took increasing doses of creasote, until she took sixteen minims daily, divided in three doses, after each meal, without showing during several days, even when the latter doses were reached, any stomachal intolerance. Finally, however, this intolerance was manifested, and, on this account, for some days the treatment was stopped, and then resumed again later, with smaller doses several times daily. On questioning this patient, it was noted that she always had very good digestion, and that in her immediate family no one had ever suffered from dyspepsia. The urine of the patient was examined on many occasions, before and after she had taken creasote internally. Before all treatment she had a trace of albumin in her urine. This trace remained the same; it did not increase in quantity, nor did it disappear entirely. When she was taking sixteen minims of creasote daily, internally, and also making frequent use of creasote inhalations, creasote was shown to be present in her urine by a very marked deep brown coloration, with the addition to the urine of a few drops of the tincture of the chloride of iron. The iron test was employed at the same time with normal urine, and gave no such reaction, and also with the urine from a patient who was taking salol. In the latter case the iron tincture gave a precipitate of a bluish or violet color.

In this place, and before giving my conclusions to this paper, permit me to add a few words which I believe are important to bear in mind. All of us know how readily one may be deceived by tabular statements, or, indeed, occasionally by reported cases. It is so easy to prove too much! Whilst error, however, often arises from the over-valuation of a particular drug, it is possible to under-estimate the utility of a real addition to our curative means in this line, when

judged after a similar manner. Therefore it is that final remarks or reflections, more or less in the form of conclusions, must frequently be added, so that a correct opinion should be formed of what a writer really believes.

I am convinced, in view of what I have seen, the proofs of which I have stated, and notwithstanding their imperfect character in many particulars, that we have in beechwood creasote a remedy of great value in the treatment of pulmonary phthisis, particularly during the first stage. Not only does it lessen or cure cough, diminish, favorably change, and occasionally stop sputa, and relieve dyspnoea in very many instances; it also often increases appetite, promotes nutrition, and arrests night-sweats. It does *not* occasion hemoptysis, and rarely causes disturbance of the stomach or bowels, except in cases in which it is given in *too large* doses.

There is a fair amount of evidence to show that by its long-continued judicious use, it may and will modify favorably the local changes in pulmonary phthisis, and how it does this I have pointed out previously, as far as I was able. Whether or not it has any direct anti-bacillary effect when given internally, or by inhalation, or both combined (the latter method being, in my judgment, the most efficient one), remains as yet to be determined in a more accurate manner. It is certainly an unobjectionable medicament from any point of view. It is easy of administration, it is adapted to the majority of sufferers from pulmonary phthisis everywhere; it may be used with some advantages at all stages of this disease, even the most advanced, and *in my experience* it has proven itself superior to any other medicinal treatment with which I am familiar.

That in all cases the nutrition is the cardinal factor to be always kept in view in the treatment of pulmonary phthisis, no matter what method or course be followed, is, I believe, as true to-day as it always has been from the clinician's standpoint, and without regard to the passing theories which may be adopted in regard to the precise rôle or influence of microbes in the pulmonary structures. The words of Dujardin-Beaumetz¹ seem, in this connection, of much value:

"There do not exist several medications of phthisis; there is but one, that which addresses itself to the nutrition; the others are only adjunct methods,

¹ Leçons de Clinique Thérapeutique, t. 2, p. 647.

which become dangerous if they succeed in affecting unfavorably a single day, a single instant, the digestive functions."

Or those other words of E. L. Trudeau:¹

"It should be kept in view that so long as the tissues present a favorable nidus for the development of the bacilli, the destruction of a portion of them, if this should be found feasible, would not necessarily eradicate the disease."

To the end of altering those chemical and vital changes in the organism which allow of the growth of the microbe, "thus far those conditions which promote bodily vigor have alone been found effectual."

NOTE.—Since writing the foregoing paper, I am much gratified to find that so distinguished an observer as Dr. Austin Flint has employed the *combined* creasote treatment, internally and by inhalation, with great benefit in ten cases of phthisis pulmonalis (*vide New York Medical Journal*, Dec. 8, 1888).

¹ *Medical News*, p. 490, May 5, 1888.

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